REMARKS

The office action of April 24, 2007, has been carefully considered.

At the outset, applicant affirms the selection of claims 10-13 drawn to the method for inerting for prosecution in the present application.

It is noted that the drawings are objected to on formal grounds.

The disclosure is objected to for containing various informalities.

Claim 10 is rejected under 35 U.S.C. 102(b) over the patent to Isenberg, et al.

Claim 10 is rejected under 35 U.S.C. 102(b) over the patent to D'Alessandro, et al.

Claims 11-13 are rejected under 35 U.S.C. 102(b) or, in the alternative, under 35 U.S.C. 103(a)over D'Alessandro, et al.

Claims 11-13 are rejected under 35 U.S.C. 103(a) over Isenberg, et al., and further in view of D'Alessandro, et al. and the Fuel Cell Handbook.

In connection with Examiner's objection to the drawings, applicant has submitted with here a replacement sheet containing Fig. 1. This sheet replaces the original sheet of drawings containing one figure. In the replacement sheet, applicant has provided a label for the figure as well as labels for the boxes in the drawing and translation of the German text. It is respectfully that no new matter is added by this replacement sheet of drawings.

In view of these considerations, it is respectfully submitted that the objection to the drawings is overcome and should be withdrawn.

In connection with the objection to the disclosure, applicant has deleted the duplicate first page of the specification and has amended the specification to refer to the drawing as labeled in the replacement sheet. In view of these considerations, it is respectfully submitted that the objection to the disclosure is overcome and should be withdrawn.

In view of the Examiner's rejections of the claims, applicant has amended claim 10.

It is respectfully submitted that the claims now on file differ essentially and in an

unobvious, highly advantageous manner from the methods disclosed in the references.

The present invention deals with a molten carbonate fuel cell system.

During normal operation in the cathode half-cell, oxygen and carbon dioxide are supplied with the air and carbonate ions with a double negative charge are formed (CO_3^{2-}). The carbonate ions migrate by diffusion through the matrix and into the anode half-cells, where hydrogen is supplied. The hydrogen reacts with the carbonate ions to form carbon dioxide and water, which results in the release of two electrons per carbonate ion.

In standby operation, in operating states in which no fuel gas is supplied to the anode half-cell, it is necessary to prevent damage of the anode material by oxidation. This is accomplished in the presently claimed invention by applying an external voltage and supplying the anode half-cell with water vapor which reacts with the carbon dioxide that is present to form hydrogen and carbonate ions. The carbon dioxide that is required enters the anode half-cell from the cathode half-cell via the electrolyte. At the same time, the carbonate ions with a double negative charge that are formed in the anode half-cell defuse in the cathode half-cell. The migration of the carbon dioxide and the carbonate ions is driven by diffusion and is thus based on concentration differences of the gasses present in the anode half-cell and cathode half-cell. Thus, the reaction that

occurs in the anode half-cell in standby operation is just the opposite of the reaction that occurs in standard operation. The absolute requirement for the above-described reaction to start to occur is the application of an external voltage, so that a current flows, specifically, in the opposite direction of current flow from normal operation (electrolysis).

The patent to Isenberg, et al. discloses an electrochemical energy conversion and storage system. Isenberg, et al. deal with a solid oxide fuel cell. Isenberg, et al. provide no disclosure concerning a molten carbonate fuel cell as in the presently claimed invention. In the energy recovery mode, shown in Fig. 2 of Isenberg, et al., voltage is produced. In the electrolysis mode, shown in Fig. 1 of Isenberg, et al., water vapor is input and hydrogen is produced. There is no disclosure by Isenberg, et al. that the electrolysis operation could also be used when the fuel cell is turned off, i.e. when it is switched to a standby operation. The hydrogen produced in the electrolysis operation functions to produce a reducing atmosphere.

Thus, Isenberg, et al. do not disclose a method carried out during standby operation of a fuel cell for producing an inert or reducing atmosphere at the anode. Isenberg, et al. only disclose a continuous normal operation for producing hydrogen. Due to the present invention, the holding ready of an inert gas for feeding into the anode half-cell during non-use can be omitted.

In view of these considerations, it is respectfully submitted that the rejection of claim 10 under 35 U.S.C. 102(b) over the above-discussed reference is overcome and should be withdrawn.

The patent to D'Alessandro, et al. discloses a fuel cell with D.C. potential means and a method of operating same. The method of D'Alessandro, et al. protects a membrane used for the anodes of the fuel cell from the corrosive effects of the electrolytes, when no hydrogen is provided to the anode. During normal operation, the hydrogen prevents the corrosion. In order to prevent the corrosion in the instance when hydrogen supplied to the anode stops, a uniform voltage is supplied between the anode and the cathode so that the membrane is held a negative to the cathode. Furthermore, during turning on and turning off of the cell, the membrane should also be held in a hydrogen free environment. To remove the hydrogen, the anode and the membrane are rinsed with an inert gas, for example steam.

Contrary to the presently claimed invention, in D'Alessandro, et al. during the times of turning on and turning off there is no hydrogen produced. Additionally, the voltage applied between the anode and the cathode does not conduce electrolysis. Thus, it is respectfully submitted that D'Alessandro, et al. do not disclose the presently claimed invention.

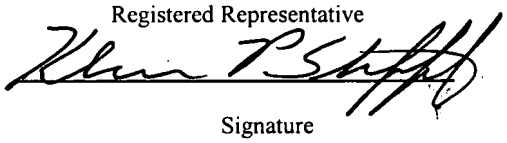
In view of these considerations, it is respectfully submitted that the rejection of claim 10 under 35 U.S.C. 102(b) and the rejection of claims 11-13 under 35 U.S.C. 102(b) or, in the alternative, under 35 U.S.C. 103(a) over the above-discussed reference are overcome and should be withdrawn.

Furthermore, a combination of Isenberg, et al. and D'Alessandro, et al. together with the Fuel Cell Handbook, does not teach the invention recited in the claims presently on file. Thus, it is respectfully submitted that the rejection of claims 11-13 under 35 U.S.C. 103(a) is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on July 24, 2007

Klaus P. Stoffel
Name of applicant, assignee or Registered Representative



Signature

July 24, 2007
Date of Signature

KPS:mj

Respectfully submitted,

Klaus P. Stoffel
Registration No.: 31,668
WOLFF & SAMSON PC
One Boland Drive
West Orange, New Jersey 07052
Telephone: (973) 530-2086